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Worldwide Report

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

No. 139

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BRIEFS

TELECOMMUNICATION CABLE RESTORED--Tokyo, 30 Oct, KYODO--The undersea telecommunication cable between Japan and China which was damaged mysteriously last month has been repaired and telecommunication circuits resumed operations Thursday afternoon, a spokesman for the Kokusai Denshin Denwa Co. (KDD) said. The 850-kilometer cable between Kumamoto and Shanghai had been "hooked up and cut" by what appeared to be the anchor of a ship on two occasions. The cable was 23 circuits for telephone, 21 for telex and four for telegraphic communication. Communication between the two countries had been switched to INTELSAT (International Telecommunication Satellite). The 4,300-ton cable layer KDD Maru repaired the damage and investigated the disruption, but failed to ascertain the cause. [Text] [OW301129 Tokyo KYODO in English 1114 GMT 30 Oct 80]

TELECOMMUNICATIONS DELEGATION MEET--Beijing, 31 October (XINHUA)--Vice-Premier Gu Mu met with a delegation from Nippon Telegraph and Telephone Public Corporation here today, in the Great Hall of the People. The delegation is led by Dr Yasusada Kitahara, executive vice-president of the corporation. Vice-Premier Gu Mu and the Japanese guests had a cordial and friendly talk. Later in the afternoon, a memorandum was signed on the exchange of telecommunications techniques between the Chinese Ministry of Posts and Telecommunications and the Nippon Telegraph and Telephone Public Corporation. Chinese Vice-Minister of Posts and Telecommunications Li Linchuan and Dr Yasusada Kitamara signed the memorandum on behalf of their respective governments. The memorandum stipulates that China and Japan will have an extensive technical exchange on items of common interest in the field of telecommunications. The two sides will exchange visits of senior officials. Both countries will despatch technical and administrative personnel to study the conditions in each country. Discussions and symposiums will be held and non-confidential technical and administrative data and publications will be exchanged. Chinese Minister of Posts and Telecommunications Wang Zigang attended this morning's meeting and the signing ceremony in the afternoon. [Text] [OW311634 Beijing XINHUA in English 1619 GMT 31 Oct 80]

NEW ZEALAND-CHINESE SERVICE--Taipei, 3 Nov (CNA)--Facsimile service between the Republic of China and New Zealand will be inaugurated Monday, opening a new page in the telecommunications cooperation between the two countries, the directorate general of telecommunications said. So far the Republic of China maintains facsimile exchanges with the United States, Puerto Rico, Guam, the Philippines, Hong Kong, Singapore, Bahrain, Australia, Switzerland, Thailand and Canada. [OW030217 Taipei CNA in English 0259 GMT 3 Nov 80 OW]

CSO: 5500

BRIEFS

LINK WITH PACIFIC SATELLITE--A satellite link between Australia, Japan, New Zealand and Hawaii to provide up-to-date economic information on the Pacific and Indean ocean regions will be established next year. The link is being organized by a lecturer in social and industrial administration at Griffith University in Brisbane, Mr (Joe Mooler), on behalf of the Australian Government. Mr (Mooler) has just returned from Japan where he discussed the proposed satellite system. It will involve the governments and universities in the four countries and will be tested during a conference at the East-West Center in Hawaii which begins in January. Mr (Mooler) says the aim of the link is to provide governments with information for planning regional and national development. [OW051407 Melbourne Overseas Service in English 1230 GMT 5 Nov 80 OW]

CSO: 5500

BANGLADESH

BRIEFS

TELEPHONE SERVICE PLANS--Minister for Posts, Telegraphs and Telephones, Mr Mayeedial Islam, said in Dacca on Wednesday that the Telephone Shilpa Sangstha would be modernised soon to make it profitable organisation, says BSS. Addressing the employees of TSS at Tongi the Minister directed the authorities to examine the feasibility and viability of manufacturing railway signalling equipment, radio cover and parts in addition to normal production of telephonic equipment. He also asked the authorities to examine the possibilities of manufacturing tools and spare parts for use by various mills and factories. He exhorted the employees to make TSS an economically viable organisation with hard and dedicated work and team spirit. The Minister went round various sections of the plant acquaint himself with the problems and handicaps being faced by the employees in performance of their duties and enquired about their welfare a He assured them all possible help and cooperation to redress their grievances. [as published] The Minister was accompanied by the secretary Ministry of PT and T and the Chairman of T and T Board. [Text] [Dacca THE BANGLADESH OBSERVER in English 9 Oct 80 p 1]

CSO: 5500

PAPER GIVES FURTHER DETAILS OF NEW SATELLITE

New Delhi PATRIOT in English 26 Aug 80 p 5

[Text] Bangalore, Aug 24 (UNI)--The flight model of the APPLE (Arianne Passenger Payload Experiment), India's first geostationary experimental communication satellite, will be airlifted from the Indian Space Research Organisation Satellite Centre here to the European Space Agency (ESA) headquarters in Toulouse, France, sometime during the middle of next month, APPLE project director Dr R.M. Vasagam said here today.

He told UNI that the satellite would undergo further component testing at the Toulouse centre before its launch from the Guianese space centre at Kourou, South America, in February 1981.

The APPLE has been built basically to help India acquire competence in the utilisation of a geostationary satellite for domestic communications on an experimental basis in continuance of the STEP (Satellite Telecommunications Experiments Project).

Incorporating latest techniques like multilayered insulation and analytical modelling, the APPLE would help bridge the technological gap between the Indian satellites launched so far and the future class of the satellites to come.

The satellite weighing 630 kg at launch will be placed in a synchronous orbit around the earth using an indigenously developed solid propellant apogee boost motor.

Besides continuing the experiments through the STEP, the APPLE would take on new experiments in fields like digital communication technology and aspects with a "softer angle" like teacher training and remote area communication.

The telemetry tracking and command of the APPLE would be done through the ISRO telemetry tracking and command network stations at Sri Hari Kota (SHAR) and Ahmedabad.

CSO: 5500

INDIA

MADRAS-PENANG CABLE FIRST PHASE IN NEW SYSTEM

Bombay THE TIMES OF INDIA in English 9 Aug 80 p 6

[Text] Bombay, August 8. The Madras-Penang cable link--the first submarine cable system in Indian Ocean--has been established, marking the completion of the first phase of the Indian Ocean Commonwealth cable system planned by India, Malaysia, the U.K., Sri Lanka, Australia, Singapore and Canada.

The submarine telephone cable system running for 1,350 nautical miles (2,205 km.) between Madras and Penang was laid in two weeks by the cableship the Cable Venture, starting from the Madras end. Yesterday, on board the ship, the final splice was made on the new IOCOM system, according to information received here.

Regular exchange of communication over the system and public utilisation of the facility will begin by the end of December after the shore-end terminals are linked up and tests are carried out, Mr S. Sreenivasachar, director-general, Overseas Communications Service, said.

To mark the occasion, a postage stamp will be released.

Second Outlet

The submarine cable link will provide a second outlet, as a diversity medium, for Indian international communications, giving increased reliability of service.

At present, India transmits almost all of its international communications, giving increased reliability of service.

At present, India transmits almost all of its international telecommunication traffic through the satellite in operation over the Indian Ocean. Using this, the OCS reaches earth stations in Europe, Africa, West Asia, East Asia and Australia.

The OCS will get access through the cable to earth stations in South East Asia which work with the Pacific Ocean satellites, giving India a second diversity route to Canada and the United States.

India's traffic to America is now routed by the Indian Ocean satellite to the U.K. or France and then by trans-Atlantic submarine cable to North America and finally by overland routes to destinations like, for instance, San Francisco on the Pacific coast. This is being done to avoid two satellite "hops."

A fundamental principle of telecommunication operation is not to use routes involving two satellite hops as it takes a spoken word about one-fourth of a second to reach a satellite and return to the receiving earth station.

The Madras-Penang link will also provide direct and more economic access to Malaysia and Singapore to India, with onward access by the regional submarine system network to destinations in other South-East Asian countries, in East Asia and in Australia.

Cable Equipment

The international submarine cable gateway at Madras will complement the existing satellite communication gateways at Bombay and New Delhi and the proposed one at Calcutta.

The submarine cable system comprises 2,505 km of 0.99-inch coaxial cable, with 173 repeaters and 11 equalisers spliced into the cable at regular intervals and the terminal equipment in Madras and Penang. The equalisers compensate for fluctuations in the signal brought about by changing sea temperatures and repeaters amplify signals.

The laying of the land cable at Madras was carried out by a city firm, Jost's Engineering Company, on behalf of Standard Telephones and Cables Limited which it represents in India. It is assisting the STC and the OCS in the planning and implementation of the cable system.

The total quantities of material involved in the 1,350 nautical miles of cable are 2,760 tonnes of steel, 240 tonnes of copper, 195 tonnes of aluminum, 1,980 tonnes of polyethylene and 175 tonnes of polypropylene, according to Jost's.

The entire system was designed, manufactured and installed by STC's submarine system's division plants at Greenwich and Southhampton, Josts said.

CSO: 5500

INDIA

TWELVE-CHANNEL RADIO LINK WITH MOSCOW PLANNED

New Delhi PATRIOT in English 23 Aug 80 p 7

[Text] Work is in progress to create a 12-channel radio link between Moscow and Delhi, by reflecting radio waves from troposphere and picking them up by a pencil beam antenna circumventing the highest peaks of the Pamirs and the Himalayas, said Soviet scientists Dr Amatoly M. Popel and Mr A.F. Bogomolov on Friday.

The scientists, heading a 21-member Intercosmos delegation, told newsmen that an intermediate station has already been set up in Tajikistan and the line is expected to be fully operational by the end of this year.

Expressing full satisfaction with the functioning of the Indian satellite Bhaskara-I launched from the USSR a year ago, the scientists said the delegation together with their Indian counterparts had evaluated the functioning of Bhaskara-1 and was working out the details of the Soviet contribution for Bhaskara-2 satellite scheduled for launch next year.

The Soviet Union, they said, will provide launching and ground control facilities, supply storage batteries and spin stabilisation on systems for Bhaskara-2.

The Indian teams will visit and work at the Soviet space centre to gain experience in operating satellite control facilities.

The Soviet Union has offered to train Indian cosmonauts at the Gagarinte Cosmonauts Training Centre and a joint flight of Indian and Soviet cosmonauts is scheduled for a date yet to be decided.

Praising Indian achievement in the programmes the heads of the delegation said that India today is among one of the seven nations of the world which have the capability to fabricate and launch satellites of their own.

Elaborating the Indo-Soviet cooperation theme in space ventures, they said that with Soviet assistance, the Indians were able to master as early as 1975 the satellite fabrication technology.

The Aryabhatta experiment, they pointed out, demonstrated the Indian scientists' capability to design, fabricate, test and launch a totally spaceworthy satellite. Encouraged by the success of this experiment, India and the Soviet Union signed a second agreement, resulting in provision of Soviet assistance for launching of the second Indian satellite Bhaskara.

CSO: 5500

POOR RADIO RECEPTION, TV LACK NOTED IN NORTHEAST

Madras THE HINDU in English 15 Oct 80 p 18

[Text] Gauhati. The demand for inclusion of the N.E. region in the TV map of India is unlikely to be fulfilled in the near future. According to present official indications, only a perspective plan is there for expansion of the TV service in the region in the course of 10 years.

The Governor of the North Eastern States, Mr L. P. Singh, has been making a persistent plea for the establishment of TV centres in the region as a means to promote national integration and for other benefits and conveniences.

The Governor recently drew the attention of the Union Information and Broadcasting Minister, Mr Vasant Sathe, to the matter and as to how he was suggesting earlier for a TV network for the N.E. region. He also pointed out the inadequate awareness in this region about the development elsewhere in the country and also a comparable lack of awareness of the cultural and social life and the problems of the people of the region in the rest of the country.

Mr Singh said when the Government had been spending crores of rupees in dealing with various movements in this region an additional amount spent on TV for the purpose of education, including political education, for cultural purposes and for promotion of national integration would be "very much worthwhile investment."

The Governor also mentioned in his letter about the widespread complaints in the N.E. region that broadcasts from the Delhi station of All India Radio are not audible in this region unless relayed through the local stations. In contrast it was further stated that the people of this region can get on the medium wave stations as far as from Lahore, Karachi and Islamabad and even from many other foreign stations.

Mr Singh was of the opinion that in the context of the felling of isolation of the people of this region from the rest of the country, it was vitally important that the broadcasts from Delhi were "within the range of audibility" in this region.

Feeling of Isolation

Even Mr Sathe himself has felt the imperative need of making "all possible efforts" to remove this feeling of "isolation and neglect" amongst the people of this region and to bring them fully in the mainstream of national life. He has also fully shared the concern of the Governor regarding audibility and reception of the AIR programmes in the N.E. region.

Replying to the Governor's recent letter, Mr Sathe revealed that three possible locations for TV relay centres have been identified at Nowgong, Jorhat and Dibrugarh in Assam to extend TV facilities along the wide band microwave links of the Post and Telegraphs Department. These transmitters will relay the programmes generated from the State capital at Gauhati. These centres are proposed to be brought up in phases "consistent with the overall resources."

Mr Sathe further informed the Governor that Doordarshan has also drawn up a scheme for limited utilisation of INSAT-1 for TV service which inter alia envisages coverage of some areas in the North Eastern region. A working group set up by the Information and Broadcasting Ministry is drawing up a "software plan" for limited utilisation of INSAT-1 for TV service. The final shape of the proposal will be known after the working group completes its work.

The Governor was further informed by the Union Minister about the setting up of a National channel in the Sixth Plan period of AIR which could be heard everywhere in the country including the N.E. region.

A number of other schemes have been drawn up or are under implementation for upgradation/improvement of AIR services. This programme includes upgradation of transmitter power of the Shillong centre of AIR from 1 KW MW to 100 KW MW, 100 KW MW transmitter at Itanagar, upgradation of transmitter power from 100 KW to 300 KW of Dibrugarh station, 20 KW MW at Tura and setting up of new stations with 20 KW MW transmitter at Goalpara/Kokrajhar and Tezpur with 20 KW MW transmitter, and radio stations at Nowgong in Assam, Bomdila, Khonsa/Along in Arunachal Pradesh, Ukhrul, Saiha/Lawntalai in Mizoram, Jowai in Meghalaya, Mokokchung, Tuensang in Nagaland and Kailasahar/Belonia in Tripura.

CSO: 5500

KDD TO SEEK 'RELAXATION' OF COMPUTER LEASING TERMS

OW300603 Tokyo KYODO in English 0702 GMT 30 Oct 80

[Text] Tokyo, 30 Oct, KYODO--Japan's international telecommunication monopoly, KDD, is preparing for a major relaxation of the terms for leasing computer-linked private circuits, such as satellite communication, to international data processing companies probably from next year.

A KDD (the privately owned Kokusai Denshin Denwa Co.) official told KYODO News Service Thursday that the proposed relaxation would permit international data processing companies, private circuit leaseholders, to link with two or more computer centers overseas in providing information services to Japanese clients.

The official said at the moment such firms are allowed to connect only with one computer center overseas.

He said American data processing companies have compalined that under present terms, they could offer only limited services to Japanese customers.

These companies have thus called on KDD to relax the terms so as to enable them to provide greatly improved services--services which would meet various customer needs.

The official said that for instance, Timeshare Inc., based in Cupertino, California, which has four computer centers in the U.S., is now offering computer services to Japanese clients through its joint venture in Japan.

The joint venture is Kokusai Timeshare K.K., based in Tokyo, which is owned 55 percent by Marubeni Corp. and 45 percent by Timeshare Inc.

Kokusai Timeshare has a private satellite circuit leased from KDD.

Under a contract with Kokusai Timeshare, a Japanese client can, in Japan, use Timeshare Inc.'s computer center at Cupertino, chiefly for management analysis, pay calculation and technical calculation, an official of the joint venture said.

Following the relaxation of the lease terms, a KDD official said the Japanese client could, in Japan, utilize all the four computer centers of Timeshare in the U.S.--one in its head office in California, another in eastern U.S., a third in Dallas and the fourth in Houston.

Further, the Japanese client could, in Japan, utilize all types of calculation centers and data banks, containing scientific, technological, economic and academic information in the U.S., which are linked with the nationwide data communication network of Timenet Inc., a Timeshare subsidiary, the KDD official said.

The KDD official said the company would shortly apply to the Ministry of Posts and Telecommunications for permission to relax the leasing terms. He declined comment on reports that the application would be made in mid-November.

The official said the proposed relaxation would require no revision of the Public Telecommunications Law but only the approval of the minister of posts and telecommunications.

He said he personally did not think that the relaxed terms would go into effect later in the year.

The ministry's data communication chief also said that U.S. data processing firms' request for easier leasing terms has come up for talks at the U.S.-Japan Trade Facilitation Committee.

Akimasa Egawa, director of the data communication division, also said the matter has already been discussed with KDD. He indicated that an application for relaxation would probably be approved.

CSO: 5500

BRIEFS

RETRANSMISSION STATIONS--Vientiane, 22 Oct (KPL)--Late last month, the provincial propaganda service of Savannakhet has installed two retransmission stations in Outhoumphon and Atsaphangthong districts. Each station is equipped with a 250W transmitter and 10 loudspeakers. [Text] [BK280311 Vientiane KPL in English 0917 GMT 22 Oct 80]

CSO: 5500

BRIEFS

NEW RADIO STATION--A major new radio station has gone into service in the Mongolian People's Republic, our correspondent, Sergey Pravdin, reports from Ulaanbaatar. This is a modern radio station built by Soviet workers and specialists in Saynshand, one of the southernmost Mongolian towns. It has been handed over by our country as a gift to the Mongolian working people. Bringing this radio station into service will make it possible to ensure good reception in south Gobi for radio broadcasts from Ulaanbaatar, Moscow and the capitals of other fraternal countries. In the current 5-year period alone, five modern radio stations together with several communications centers have been built in Mongolia with the assistance of the USSR. And construction is nearing completion of a radio relay line from Ulaanbaatar to Altay which has an overall length of 2,200 km. Broadcasts from Moscow and the capitals of other countries of the socialist community can now be seen by communications satellite in all the regional centers of Mongolia. [Text] [LD010310 Moscow Domestic Service in Russian 0635 GMT 30 Oct 80 LD]

RADIO STATION COMMISSIONING--Ulaanbaatar, 27 Oct (MONTSAME)--A meeting devoted to the commissioning of a new radio broadcasting station, one of the projects presented as a gift by the Soviet Union during the current 5-year plan period, was held today in Saynshand, administrative center of Dornogobi Aymag. Speeches were made at the meeting by D. Maydar, member of the MPRP Central Committee Politburo and first deputy chairman of the MPR council of ministers, and M.P. Makareyev, minister counselor at the USSR Embassy in the MPR. On the same day the turnover and acceptance documents for the new communications projects were signed. The documents were signed by I. Norobjab, MPR minister of communications, and M.P. Makareyev, minister counselor at the USSR Embassy in the MPR. The document signing was attended by D. Maydar, member of the MPRP Central Committee Politburo and first deputy chairman of the MPR council of ministers; B. Jamsran, first secretary of the Dornogobi Aymag MPRP committee; J. Gombojab, chairman of the executive administration of the Aymag's hural; and other officials as well as G.P. Koyenman, counselor at the USSR Embassy in the MPR. [Text] [OW311011 Ulaanbaatar MONTSAME in Russian 0502 GMT 28 Oct 80]

CSO: 5500

BRIEFS

SATELLITE NAVIGATION RECEIVERS MANUFACTURED--Beijing, 21 Oct (XINHUA)--China has successfully manufactured its first batch of receivers for receiving navigational signals from satellites. The receivers have performed satisfactorily on oceangoing vessels. Satellite navigation is a modern navigational technology. The receivers, newly manufactured by China for receiving navigational signals from satellites, can be used under all weather conditions and in any part of the globe. They are highly capable of eliminating interference and they are highly accurate and stable. When China launched its carrier rocket into the Pacific last May, such receivers installed on all oceangoing survey and salvage ships played an important role in guiding the ships to successfully complete their survey and salvaging tasks. The first batch of receivers was jointly manufactured by concerned industrial departments, scientific research units and plants in China. [Text] [OW211003 Beijing XINHUA Domestic Service in Chinese 0332 GMT 21 Oct 80]

CSO: 5500

HOA SEN COMMUNICATIONS SATELLITE GROUND STATION PROGRESS REPORTED

Hanoi NHAN DAN in Vietnamese 8 Oct 80 pp 1, 4

/Article: "Perfecting Hoa Sen Communications Satellite Ground Station Project"/

/Text/ The Hoa Sen Communications Satellite Ground Station constructed portions of the technical operation to promptly receive programs from the Moscow Olympic Congress and the Vietnamese-Soviet space flight. Series of projects supporting the station have been continuously perfected. Construction Corporation 4 reinforced the project guy wire and column foundations and constructed housing, security and shift buildings, a warehouse area, reservoir, pumping station and other support projects. Construction Installation Enterprise 1 installed an electric power line and signal light on a mast 124 meters high. The local communications service paved a road around the station and spread asphalt over the remaining roads, installed warning signs and perfected the drainage ditch system. The Post and Telecommunications Corporation transported 70 tons of remaining supplies to the station and installed an internal telephone system. The Vietnam Fine Arts Association is assisting in decorations, enabling the Hoa Sen Station to be truly a cultural project. The Hanoi Public Park Corporation is planting trees and plants in the station area in accordance with plans of the Vietnam Fine Arts Association.

In the technical aspect, the post and telecommunications sector has made many experimental telephone calls through the Hoa Sen Station between Hanoi and Moscow. The quality of communications was good with clear hearability, good volume and faithful reproduction of each tone. Many photographs and news agency dispatches from Hanoi and Moscow have been transported to each other through the station. The Hoa Sen Station has also received many news programs transmitted by satellite from the Moscow television station for rebroadcast by the Giang Vo television station in Hanoi.

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CSO: 5500

BRIEFS

SEMINAR ON SATELLITE UTILIZATION--A 2-day statewide seminar which began in Prague on 8 October is devoted to the utilization of radio satellite service by the national telecommunications network. This system is also of considerable importance for the introduction of the third television channel in the CSSR. [Bratislava PRAVDA in Slovak 9 Oct 80 p 2 AU]

CSO: 5500

BRIEFS

SHORT-WAVE TRANSMISSION CENTER--Zagreb, 3 Nov (TANJUG)--The transmitter factory of Radio-Industrija Zagreb [RIZ] has taken on the entire construction and assembly of the short-wave transmission center and the aerial system for Radio Yugoslavia. This amounts to one of the most complex projects of this kind carried out in the world so far. The value of the work is estimated at about 400 million dinars. The entire system is planned to be completed in about 2 years. The contract on the construction of this project, as stated at today's press conference in Zagreb, was signed by Dr Zdravko Pecar, director of Radio Yugoslavia, and by Branko Tkalcevic, director of the RIZ transmitter factory. When this project is completed Radio Yugoslavia will have the most modern technical equipment with four 500-kilowatt transmitters by which it will transmit in nine world languages. With the installation of this system Radio Yugoslavia will be heard by inhabitants of a large number of nonalined countries in Asia, Africa and Latin America and the station will also be heard in Australia, West and East Europe and North America. Most of the equipment for Radio Yugoslavia comes from Yugoslav manufacturers and only a part of the aerial installations is imported. [Text] [LD031930 Belgrade TANJUG Domestic Service in Serbo-Croatian 1433 GMT 3 Nov 80]

CSO: 5500

BRIEFS

NEW COMMUNICATIONS POLICY--Paramaribo, Suriname (CANA)--The Surinamese Government has announced plans for creation of a national news agency, as well as a code of ethics for cinemas, in a new communications policy outlined here. The policy is based largely on recommendations of a special five-man committee which studied the media and communications in the former Dutch colony. The government will set up a national news agency which will have links with similar agencies elsewhere in the Third World. Government news will now be distributed exclusively through the Government Information Service, branches of which will be set up throughout the country. The state radio and television services will also be reorganised to ensure a greater role for them in distributing information. A code of ethics will be developed for the cinemas and norms established for their operations. The government will also start an educational program for journalists, paying particular attention to the role of the journalists in the developing process. The new policy is in keeping with a program announced last May by President Henck Chin a Sen for improving the national media. [Text] [FL291820 Georgetown GUYANA CHRONICLE in English 23 Oct 80 p 10]

CSO: 5500

ARABIC TELEX SERVICE INTRODUCED

Jiddah ARAB NEWS in English 18-19 Oct 80 p 3

[Text]

JEDDAH, Sept. 17 — Telex subscribers in the Arab world will be able to send their material in Arabic sometime next year, according to officials.

Al-Tijara, the monthly magazine published by Jeddah Chamber of Commerce and Industry quoted participants of the Conference of Government Delegates to the Arab Telecommunications Union as saying that Arabic service will be introduced to the telex system among Arab countries a year later. The conference was held in Baghdad in August.

The confirmation of the officials is based on the conference's final approval of the technical specifications of the Arabic telex. The conference recommended establishment of an Arab telecommunications institute. Baghdad was chosen for the institutes location at the Iraq government request. Iraq has allocated $7 million — presenting a land plot, construction costs and 50 per cent of the operating expenses — while other members will provide the 50 per cent operation costs.

The institute's major aim will be to train teachers for the most advanced levels of telecommunications. The graduates of the institute will conduct training in national institutes in Arab countries. The institute will also produce a unified training program, provide means of further expression for the programs, by drawing convenient plans to promote technical cooperation between the national institutes.

Judging by the decision of the telecommunications conference, the establishment of the institute will not be delayed much. A committee was formed to layout a basic policy project for the institute to be prepared before the extraordinary conference of the Arab Telecommunications Union in October.

The extraordinary conference will discuss the basic policy project for the telecommunications institute, approve it and make certain adjustments to the union's regulations. The meeting will also consider unifying telephone and telex definitions in Arab countries.

CSO: 5500

AGREEMENT SIGNED WITH SUDAN-ETHIOPIAN NEWS AGENCY

LD221122 Khartoum SUNA in English 1024 GMT 22 Oct 80

[Text] Khartoum, 22 Oct (SUNA)--An agreement on mutual cooperation and news dissemination was concluded here yesterday evening between the SUDAN NEWS AGENCY (SUNA) and the ETHIOPIAN NEWS AGENCY (ENA).

SUNA General Manager Mustafa Amin signed for the Sudanese side. ENA General Manager Haile Mariam Coshis signed for the Ethiopian side.

Consisting of a number of articles, the agreement is aimed at the promotion of information links between the two countries in the fields of transmission of news items and facts besides the training of journalistic cadres.

Speaking on the occasion Coshis lauded the role the agreement could play regarding the strengthening of relations between the two agencies, particularly in the spheres of information.

On his part Amin expressed hope that the two parties would (?comprehend) the tasks of their big responsibility towards the promotion of relations between the Sudan and Ethiopia.

The signature ceremony was attended by SUNA Deputy General Manager Mohamed Husi Hawash and theEthiopian charge d'affaires [first name indistinct] Isma'il Hassan.

CSO: 5500

EGYPT

BRIEFS

TELEPHONE MODERNIZATION--Munich, 20 Oct (DPA)--An international consortium led by Siemens (Berlin and Munich) has received an Egyptian order worth DM600 million for the modernization of the Egyptian telephone and telecommunications network. The order forms part of a five-year modernization project running from 1979 to 1984 with a total value of DM3.5 billion. The French Thomson CSF and Siemens, Austria, are the other members of the consortium. Egypt's antiquated telephone network was built by the British 35 years ago. [Hamburg DPA in German 1650 GMT 20 Oct 80 LD]

CSO: 5500

BRIEFS

AWACS DISRUPT COMMUNICATIONS--A responsible source at the United Arab Emirates [UAE] Communications Company, (AMERCEL), stated that the cause for a break in outside contacts between the UAE and the United States, Britain and France was due to the spread of wavelengths emanating from Saudi Arabian territory. The source added that the wavelengths affected all telecommunications services in the area and also led to disrupting international telephone and telegraphic services. The Jana correspondent in the Arabian Gulf noted that announcing the disruption in telephone communications between the UAE and some other states comes in the wake of the AWACS spy planes flights in Saudi Arabian skies where the planes are observing the area with extremely advanced and complex instruments. The reporter added that these planes previously disrupted the relaying of prayers on Mount 'Arafat via satellites to television and radio services in Islamic countries. The leader of the revolution in the speech on the occasion of 'Id al-Adha festival said that U.S. AWACS planes which occupy the skies of the holy places had led to disrupting the relay of prayers on Mount 'Arafat to Islamic radios. He demanded the liberation of the skies of the holy places from this unprecedented U.S. colonialism. [Text] [LD282257 Tripoli Voice of the Arab Homeland in Arabic 2200 GMT 28 Oct 80]

CSO: 5500

YEMEN ARAB REPUBLIC

TELECOMMUNICATIONS PROJECTS INAUGURATED

Jiddah ARAB NEWS in English 30 Sep 80 p 1

[Text]

SANAA, Sept. 29 (Special) — Col. Ali Abdulla Saleh, president of Yemen Arab Republic has officially inaugurated a number of telecommunications projects on the occasion of the 18th anniversary of the Sept. 26 revolution. The projects include the laying of the foundation stone of a standard satellite earth station, a new international telephone switching center and a training school.

The president was met at the Cable Wireless installations at al Ghuraff area by Ahmed al Ansi, minister of transport and communications and senior officials of Cable and Wireless. He was accompanied by President Abdul Kareem al Arashi, Prime Minister Abdul Aziz Abdul Ghani, ministers and other senior government officials.

After laying the foundation stone of the second earth station the president unveiled the plaque officially opening the new ITSC from where he made a direct phone call to the Yemeni embassy in Paris. The president then opened the training school and had a quick tour during which he was shown the various sections and the most modern telecommunication training equipment available.

The laying of the foundation stone of the new earth station shows the growth and development of telecommunications in Yemen. It is to meet the demand for additional circuits which cannot be met with the present standard earth station opened in November 1976. Work on the new project will begin in October this year at a cost of Y.R.40 million. Nippon Electric Company will build the station which will be ready for service in the first quarter of 1982.

The new 24-switchboard positions international telephone switching center will cater for the increasing telephone demand by providing an efficient means of automatic access from and to YAR and facilitates the introduction of the international subscriber dialling service.

The new training school will meet the demands for the technical and management training in telecommunications and qualify the Yemenis to play a bigger part in operating this utility. The school already received the first group of trainees, 9 technicians, 10 telex and telegraph operators, 3 teleprinter mechanics and 4 radio-telephone operators.

During their training period, they study English language, mathematics, engineering science and elementary telecommunications practice for 2 years at the school and then they join the C and W Porthcurno Engineering College in the U.K. for 5 months. Trainees also receive practical training on the various types of equipment and apparatus available at the school.

Telecommunication traffic in Yemen is growing and international telephone traffic was 6300 paid minutes in June 1975. In June 1980 it rose to 106,054 minutes. International telex was 16,850 minutes in June 1975 compared with 93,311 minutes in June 1980. Telegraph traffic also increased from 8,369 messages in June 1975 to 17,628 in June 1980.

Telecommunication's is a part of a development program under a ten-year agreement signed last year between Cable and Wireless and YAR's government for the expansion and improvement of the country's international telecommunications services.

CSO: 5500

BRIEFS

TELECOMMUNICATIONS CONFERENCE--Brazzaville, 28 Oct (AFP)--Telecommunications authorities in the Central African sub-region are holding a conference here to discuss improved coordination, the Congolese News Agency reported today. Camaroon, Gabon, Central African Republic, Zaire and Congo are attending the conference, which opened yesterday. Participants are considering plans for numbering and switching coordination. [Text] [Paris AFP in English 1330 GMT 28 Oct 80 AB]

CSO: 5500

EDUCATIONAL RADIO, TV STATIONS TO BE INSTALLED

Addis Ababa THE ETHIOPIAN HERALD in English 15 Oct 80 pp 1, 5

[Excerpt] Addis Ababa (EH)--The Educational Mass Media Service of the Ministry of Education is to install nine new radio transmitting stations during the current academic year with a view to disseminating education among the broad masses and properly implementing its objectives in line with the NDR Programme.

This observation was made by Comrade Yihun-Belai Mengistu, Head of the Educational Mass Media Service, during an interview with The Ethiopian Herald.

He said that the new radio transmitting stations, the constructions and installation work of which is already underway, are located in Dessie, Lege-Dadi, Mekele, Debre-Markos, Bahir-Dar, Gimbi, Gore, Robe and Alemaya. Between now and December, Comrade Yehun-Belai stated, the Lege-Dadi, Alemaya, Robe, Gore and Gimgi transmitting stations will become fully operational and the remaining stations begin broadcasting educational programmes before the end of the current academic year.

Supplement to Formal Education

As a supplement to formal and adult education, so far, the Educational Mass Media Service has been broadcasting educational programmes from its two radio transmitting stations that are located in Addis Ababa and Wolayita Sodo. Accordingly, the programmes in radio broadcast cover Amharic, English, social studies, and science subjects for grades 1 to 6 as a supplement to formal education, the head of the Mass Media Service revealed.

In the same manner, he continued, the Educational Mass Media Service also broadcasts material involving science, productive technology, handicrafts and social science for grades 1 to 6 on television twice a week in the evenings.

CSO: 5500

ROBERTS DISCUSSES TELECOMMUNICATIONS DEVELOPMENTS

Monrovia THE REDEEMER in English 16 Oct 80 p 8

[Text] The Managing Director of the Liberian Telecommunications Services, Mr. Charles B. Roberts has stressed the need for the Telecommunication mechanism in Liberia to coordinate and achieve a standard of efficiency that would be acceptable on both national and international terms.

He said that the antidote for such a development would require not only the expansion of services in the country, but also the maintenance of those services that are expanded.

Speaking during an interview last week, Mr. Roberts said although there has been a significant improvement in Telecom's services to the people, his administration hopes to place equal emphasis both on the expansion of services and adequate maintenance of the country's communications apparatus.

The 30-year-old Roberts who took over the reins of the corporation's leadership barely two weeks ago, said, "until we have developed a reliable service within, it will be difficult to derive maximum benefit from expanded international service capacity."

Mr. Roberts cited as an example the current telecommunications network in Monrovia, especially the cable network which he said needs to be completely rehabilitated.

However, Mr. Roberts said as part of a remedial measure, his corporation had just concluded a contract with a Swedish Firm (SWETEL), Swedish Telecommunications for the rehabilitation of LTC's outside cable plan.

Meanwhile, there are plans afoot for the coordination and extension of telecommunication services between member states of the Economic Commission of West African States (ECOWAS).

Through this undertaking, says the LTC boss, ECOWAS member states will have the opportunity of communicating directly with one another instead of relaying their communications through a European nation as in the present case.

In this connection, he noted that Liberia has been one of the few nations in the ECOWAS community which have completed most of her telecommunications development project time "despite the corporations financial constraint."

CSO: 5500

JAPANESE TEST EQUIPMENT PRESENTED TO TELECOMMUNICATIONS

Monrovia THE REDEEMER in English 16 Oct 80 p 8

[Text] A volunteers of the Japan Overseas Co-operation Venture (JOCV), Mr. Yoshihiro Sato presented $4,000 worth of test equipment to the Liberia Telecommunications Corporation here last Tuesday. [as published]

At the ceremony, Mr. Sato told Telecom Managing Director, Charles B. Roberts, Jr. that the equipment were given under the Japanese Technical Assistance program to Liberia.

The equipment are high power "controlled diagnostics" for testing and continuous monitoring of faults on equipment and machines at the Liberia Telecommunications Corporation.

Mr. Roberts thanked the technical volunteer, and hoped that cooperation between Liberia and Japan would continue in the maintenance and development of Telecommunication System.

He informed Mr. Sato that there were Japanese experts contributing to the development of the Telecom System in Liberia.

Mr Roberts thanked the Japanese government for providing the technicians, who, he said, were helping to rehabilitate the entire cable plant for telephone system throughout Liberia.

He hoped the level of cooperation and technical assistance provided by Japanese team would increase in proportion to the needs and requirements of the corporation. LINA

CSO: 5500

BRIEFS

SWAPO TRANSMITTERS--SWAPO is installing transmitters for propaganda that are as powerful as and even more powerful than SABC's. Justice minister Kobie Coetsee stated this at a Reddersburg dispatch-riders gathering. He said many people listened to the English and Afrikaans broadcasts, whereas very few ever listened to the 20 transmitters of South Africa's opponents. Over 300,000 words of propaganda are "unleashed" weekly on South Africa by the transmitters. The broadcasts distort the country's economic situation, stir up hate and spread anti-white propaganda. Coetsee said that the political option offered to the country's blacks by South Africa's opponents is a black majority government that will eventually turn into a one-party totalitarian state. "This option must be neutralized with a better political offering." [Text] [Windhoek DIE SUIDWESTER in Afrikaans 16 Oct 80 p 5]

CSO: 4408

BRIEFS

TWO TRANSMITTERS INSTALLED--The presidential adviser on information, Chief Olu Adebanjo, and the director general of the Federal Radio Corporation of Nigeria, FRCN, Mr George Bako, today left Lagos on a 2-day official visit to (Suleja). The tour is to appraise the progress so far made by the FRCN in the area. Mr Bako told newsmen at the Murtala Mohamed Airport that the visit will also help the presidential adviser to see things for himself and make recommendations to the federal government. The director general disclosed that two new 50-kilowatt short wave transmitters were being installed in Ijede near Ikorodu for the educational program of the corporation. Mr Bako stated that the FRCN has a number of constraints militating against its operation in Abuja. These, he said, include accomodation. [Text] [AB271400 Lagos Domestic Service in English 1200 GMT 27 Oct 80]

COMPANY PLANS NEW PROJECTS--Nigerian External Telecommunications, Limited, NET, has embarked on extension projects valued at over 52 million naira. They involve the upgrading of the Lanlate satellite system at a cost of 2 million naira, the installation of a satellite earth station in Kujama at about 40 million naira and the construction of an international telephone switching center and telex exchange in Kaduna at a cost of 10 million naira. The acting chairman of the company, Chief Ola Yusufu, disclosed this in Lagos today while briefing newsmen on the activities and future plans of the organization. Chief Yusufu outlined some of the projects proposed for execution by the company in the fourth national development plan period. They include the third satellite earth station in Lanlate, construction of the microwave link between Lagos and Lanlate, as well as microwave links between Abuja and Kaduna and maritime satellite communications system. Chief Yusufu regretted that the inclusion of the company in the unified salary structure had made it impossible for it to retain experienced staff in its services. He urged the government to allow the company to operate a salary structure in line with what is obtainable in other places with similar business. [Text] [AB311143 Lagos Domestic Service in English 1500 GMT 30 Oct 80]

CSO: 5500

DETAILS OF 1982 BLACK TV CHANNEL GIVEN

Johannesburg THE CITIZEN in English 15 Oct 80 p 18

[Text] **THE South African Broadcasting Corporation has confirmed that the TV2 channel to be introduced in 1982 will consist of two separate services — an Nguni channel (Zulu and Xhosa) and a Sotho channel (Southern Sotho and Tswana).**

Instead of the language block being split as previously advised, each language group will now have 27 hours of broadcasting time a week, effectively doubling the availability of commercial time.

The SABC emphasises, however, that TV2 is not a commercial service — it will specifically cater for cultural requirements of Black viewers. In addition, it will not seek maximum audiences at the cost of lowering programme standards or narrowing the spectrum of appeal.

The service will carry commercials from the outset, and the allocation system, such as is used for TV1 is likely to be adopted, as early indications are that demand for air time may exceed the supply.

The initial allocation operation will start with the announcement of the applicable rates in April, 1981, although firm contracts for advertising time will only apply on or after July 1, 1982.

The five transmitters which will be in operation at the commencement of the service will provide a coverage of over 2,2-million Blacks, around 80 percent of them in urban areas.

The power of the transmitters will be increased during the course of 1982, increasing coverage to over 3,5-million Blacks, 73 percent in urban areas.

Commercials will comprise 8 percent of overall transmission time, with no advertising on Sundays. Based on total broadcast time of 27 hours a week, this will give 129,6 minutes a week, or around 13 480 x 30 seconds a year.

A preliminary survey amongst agencies indicated that the service will be oversubscribed, although fewer brands will be applying for time than was the case with TV1 (309 brands compared with 492 for TV1 in the first year).

Commercials appearing in the Nguni programme block, will need to be either Zulu or Xhosa and those in the Sotho block, in one of the three Sotho languages. Advertisers will not be required to make commercials in five different languages.

Allocation of commercials will be the same as for TV1, ie half the time will be in the Nguni block and half in the Sotho block, based on the formula of market share, if known, and advertising expenditure share.

CSO: 5500

ZIMBABWE

NEW NATIONAL NEWS AGENCY FORMED

Salisbury THE HERALD in English 28 Oct 80 p 1

[Text]

THE Minister of Information and Tourism, Dr Nathan Shamuyarira, yesterday announced the formation of a new national news agency to be known as the Zimbabwe Inter-African News Agency (Ziana).

The announcement followed a decision taken in Johannesburg earlier in the day by the board of the South African Press Association to relinquish its shareholding in the Inter-African News Agency.

The Sapa board statement said:

"Following cordial discussions between representatives of Sapa and the Minister of Information of Zimbabwe, Dr Nathan Shamuyarira, the board of Sapa resolved to divest itself of its shareholding in the Inter-African News Agency of Zimbabwe.

"This step will enable the Minister to establish a trust to hold the shares of Iana which will be renamed the Zimbabwe Inter-African News Agency.

"Ziana will continue to be the domestic news agency of Zimbabwe but will be wholly Zimbabwean owned and operated. Sapa will cease to have any connection with Ziana other than any contractural agreements which may be made to buy and sell news services such as may be entered into between any two independent news agencies.

"For its part, Sapa will establish a branch office in Zimbabwe to maintain a flow of news on Zimbabwean affairs to Sapa members and subscribers in South Africa and elsewhere."

Dr Shamuyarira's statement said:

"This resolution removes the last obstacle in the way of establishing a Zimbabwe news agency.

"We could not perpetuate a situation where the news agency of a free and independent Zimbabwe was owned and managed by a South African company. We made the fact known to Sapa and we are pleased that they have responded positively.

"The Zimbabwe Mass Media Trust to be established soon will take over all the shares of Sapa in Iana. The trust will be a self-perpetuating body. Initially it will have to be set up by Government, but once that is done it will stand entirely on its own feet.

"The trust will appoint a manager and an editor for Ziana to replace those appointed by the South African company—Sapa. Most of the staff will be absorbed by the new agency."

Asked for comment, the chairman of Iana, Mr Ken Wilson, last night said he was satisfied the new company will be independent and free from any Government control.

Present staff would be retained, he said, and there would be no change in their conditions of service.

CSO: 5500

BRIEFS

DATRONIC CONTRACT--Datronics, a subsidiary of the CF Tulley Associates Group, signed formal contracts worth $1,5 million with seven major Zimbabwean organisations. Among those who are to buy computers and software are the Treasury, the Agricultural Marketing Authority, Treger Industries (Pvt.), G and D Shoes, Windmill (Pvt.) and Database (Pvt.). Mr John Tulley, managing director of Datronics and C.F. Tulley Associates, said that although they were relatively new companies they now accounted for a major part of the data processing industry in Zimbabwe. He also announced the formation of a new company Database (Pvt.) Ltd., a consortium consisting of Progress Investments (Pvt.), Treger Holdings, Datronics and another as yet un-named partner. Mr Tulley said that he expected similar consortia to be popular in this country because of the high cost involved in establishing computer installations. He also announced that an annual bursary will be awarded by C.F. Tulley Associates to students of computer science, worth $2 000 to cover tuition and residence fees and textbook expenses. The award will be restricted to Zimbabweans intending to take up employment in this country. [Text] [Salisbury BUSINESS HERALD in English 23 Oct 80 p 8]

CSO: 5500

FEDERAL REPUBLIC OF GERMANY

BRIEFS

OPEC NEWS AGENCY BEGINS--Vienna, Nov 3 (TAP-GNA)--The OPEC News Agency will officially begin its broadcasts on Monday from Vienna with a daily average of 1500 words broadcast to 70 countries of the five continents. The news will essentially be centered on energy and will deal with the oil policy of OPEC and of its member states within the framework of the present international economic relations. The central agency will receive news from the 13 OPEC member states and correspondents working in these countries' national news agencies. [Text] [LD041112 Tunis TAP in English 1412 GMT 3 Nov 80]

CSO: 5500

SATELLITE EARTH STATION EASES COMMUNICATIONS WITH EUROPE

Reykjavik MORGUNBLADID in Icelandic 7 Oct 80 p 3

[Article: "The Satellite Earth Station Skyggnir Begins Operation: Direct Dialing to Europe Except Nordic Countries and Britain"]

[Text] The satellite earth station Skyggnir in Mosfellssveit began operating on partial basis yesterday and it is now possible to dial direct to various countries in Europe. The Nordic countries and Britain will be connected to the system through West Germany in about a month from now. Later it will be possible to transmit television material directly via satellite, but that has not been finalized yet.

Director General of Posts and Telegraphy, Jon Skulason, said in an interview with MORGUNBLADID that this marked an important phase in Iceland's telecommunications. During the coming months, direct dialing will be established with most countries we have telecommunications with. In order to offer this service, it was necessary, on one hand, to build an automatic international telegraph station in Reykjavik, the Muli station, and on the other hand, to build a satellite earth station, which was built in Mosfellssveit. The satellite earth station was built in cooperation with the Great Nordic Telegraph Association in Copenhagen. Iceland is a member of Intelsat, an international company which launches and operates telecommunications satellites across the oceans. The total cost of the station is around 2.8 billion Icelandic kroner at the current rate of exchange.

To begin with it will be possible to dial overseas direct from the Reykjavik area. Adjustments are currently being made for all telephone users to dial direct overseas. The plan is to finish that as soon as possible. There will be some change in service fees for telephone calls; the fee to call Germany will be reduced by 13 percent and by 2.2-7.5 percent to other countries. It will continue to be possible to dial through the operator by dialing 09. For the time being, 09 will also be the number to dial for information about overseas calls, but that number will be replaced by 08 next month.

Officials from the Post and Telegraph Administration showed newspeople Skyggnir yesterday. Also present were area officers from the Post and Telegraph Administration along with the staff at the satellite earth station.

9583
CSO: 5500

SPECIFICATIONS FOR TDM TELEGRAPH, DATA MULTIPLEXERS

Rome NOTE, RECENSIONI, NOTIZIE in Italian Jan-Mar 80 pp 15-20

[Article by S. Colonna, A. Giuseppini and G. Rinaldo]

[Text] Summary

The present article presents technical specification No 662 of the ISPT [Higher Institute of Posts and Telecommunications] relative to time-division multiplexers for telegraphy and anisochronous data that correspond to recommendation R.101 of the ITTCC [International Telephone and Telegraph Consultative Committee]

The mechanical structure and the performance characteristics required of the multiplexer are illustrated. Special attention is devoted to the approaches taken to limit heat dissipation and to the choices made in order to guarantee complete programability.

1. Introduction

The ITTCC, at the conclusion of the 1972-76 study period, issued two new recommendations, R.101 and R.111, regarding apparatuses capable of multiplying telegraphic and anisochronous-data signals. These apparatuses, using time-division (TDM) techniques, have aroused considerable interest in the PT [Posts and Telecommunications] administrations because the use of such techniques represents today a very valid alternative to those of frequency-division multiplexing (FDM), both from the purely technical point of view and especially from the economic one. If one considers the constantly growing demand for data and telex services in Italy, and the forecasts, which do not anticipate any drop in such demand in the future, one can easily understand why the Italian PT administration has been considerably interested in and eager for the standardization of equipment using the TDM technique.

The two new Recommendations relate to systems for TDM multiplexing of anisochronous signals in accordance with, respectively, two modalities: the first dependent on the format and speed of modulation of the start-stop signal (R.101 code dependent) and the second independent both of format and of modulation speed (R.111 code independent).

On the hypothesis of wanting to multiplex 50-baud tributary channels, the code-dependent TDM systems can carry 46 on a digital flux operating on digit frequency of 2.4 kbits/sec, while the code-independent systems are capable of multiplexing 240 50-baud channels on a 64-kbits/sec flux. Flux at 2.4-kbits/sec can easily be transmitted by data **MODEM** on a normal analog telephone circuit, or, by using multiplexing of higher magnitude (using, for example, a multiplexer in accordance with ICCTT Recommendation X.50), can be sent on a 64-kbit/sec digital carrier, making it possible to bundle 920 50-baud tributary channels. This greater efficiency (about 4 times) as compared with that offered by the code-independent TDM systems, and especially the possibility of immediate use by means of a normal analog telephone channel, have led the Italian PT administration to concentrate its attention on Recommednation R.101 (alternative B) rather than on Recommendation R.111.

This choice has taken concrete form in the preparation of "Technical Specification No 662 relative to time-division multiplexing equipment dependent on code and speed, with interconnection of bits for telegraph and data transmission with aggregate speed of 2,400 bit/sec" published in February 1978 by the Higher Institute of Posts and Telecommunications.

2. Technical Specification No 662

It is articulated in five chapters, each of which is subdivided into sections; it describes completely both the mechanical and the electrical requisites for the multiplexer and contains the prescriptions relative to the data MODEM which, it is anticipated, may equip the TDM rack.

Our purpose here is to give a panoramic overview of the contents of each specification, considering, where necessary, the reasons for the choices made and the requirements prescribed by Recommendation R.101, alternative B.

3. The Mechanical Structure of the Apparatus

The apparatus is made by using the now well-established N2 technique, and a rack of standard dimensions of 2,600 mm height, 120 mm width and 225 mm depth is used to mount the following functional assemblies:

--power-supply assembly;

--telegraph-data channel interface assembly;

--lattice-elaboration and sequential-timing assembly;

--MODEM assembly;

--services and alarms assembly.

As regards the positioning of these assemblies on the rack, so as to provide freedom for designing, the specification states only that the power-supply assembly is to be positioned at the lowest part of the rack and that the lattice-elaboration and sequential-timing assembly as well as the services and alarms assembly be placed in the central part of the rack so as to provide ease of control by the personnel in charge.

As for the exchange wiring, it has been decided that it is to be run in at the top of the rack, to exclude the possibility, as foreseen by standard N2, of its entering the rack so far as to reach the assemblies or the units. This decision was dictated not only by the conviction that rack wiring done in the factory proves intrinsically more reliable than wiring done on site, but also by requirements of the installation work itself, which is done directly by the exchange operators.

It has been provided that by the making of a simple hole at the base of the rack, the plant wiring can come from the bottom, as in the case of plants that have a floating floor.

For all the other aspects relative to mechanical structure, the specification follows standard N2 entirely.

4. Standardized Connectors

All the connectors situated on the front of the equipment for use by the exchange operators have been standardized.

For the sectioning of the telegraph line, the jack-type 4-pole connector made by Siemens, with the contacts protected by a dust cover, has been adopted. For measurement, a cord with a male connector at one end and a female at the other is used to make the connection with an appropriate unit on the services assembly, by which a series of measurements and checks can be made easily.

For all the other sectionings, though, FACE [expansion unknown]-type connectors of 3.81-mm pitch have been adopted.

5. Performance Characteristics of the Equipment

In Section 1 of Chapter 4 of the specification, under the heading "Characteristics of the Signals," all the performance characteristics of the multiplexer, in accordance with what ITTCC Recommendation R.101, alternative B, establishes, are described.

We shall not go into a detailed description here but shall rather only point out several essential characteristics.

The multiplexer, which is capable of bundling 46 50-baud tributary channels by the time-division technique in a 2,400-bit/sec digital flow organized in lattices, guarantees an effective net margin of not less than 40 percent at the channel input, and as regards its regenerative characteristic, distortion lower than 3 percent.

In addition to its 50-baud modulation speed, the multiplexer is capable of handling seven other speeds--specifically, 75, 100, 110, 134.5, 150, 200 and

300 bauds--with ITTCC alphabet No 2 and No 5, both in a homogeneous and in a heterogeneous manner. Thanks to bit-by-bit multiplexing, the time for transferring the signals through the equipment is reduced to the minimum, thereby guaranteeing correct transit of telex signaling. Regarding this signaling, each tributary channel can be preset to accept any one of the signaling types provided for by the ITTCC--specifically, A, B (with selection by disc or keyboard), C and D; in addition, different signaling types can be used in the two directions of transmission.

Finally, it is worthwhile to point out that the outputs from each cahnnel are monitored in such a way that in case of incorrect functioning of the system, they restore--at choice--one of the following conditions:

(a) restoration of permanent start polarity;

(b) restoration of permanent stop polarity;

(c) restoration of permanent start polarity after a loop at the end for a period of about 5 seconds.

6. Direct-Current Channel Interfaces; Heat Dissipation

Two types of interface, designated as low-power and high-power, respectively, have been standardized. The former has electrical characteristics that correspond to Recommendation V.28 of the ITTCC and is appropriate for the connections with the new electronic telegraph exchanges for which signals of ±20 mA current are not necessary.

The latter interface (high-power), though, deals with the present situation, in which electromechanical exchanges and terminals for which telegraph-signal current of ±20 mA is required are very widespread. Precisely because of this aspect, this type of interface must therefore have performance characteristics equal to the traditional ones, used in the FDM telegraph multiplexers. From the beginning of the work of drafting the specification, this necessity raised a serious probelm as regards dissipation of power. Indeed, in the traditional FDM telegraph equipment, with the average line loads normally used (1,000-1,300 ohms), about 2/3 of the power required for the telegraphic restitution circuits is necessarily dissipated in the form of heat inside the equipment. While this can barely be tolerated for FDM multiplex, it cannot be tolerated for TDM multiplex, inasmuch as the latter has nearly double the number of channels in the same rack-space; therefore, permitting dissipation per channel equal to that tolerated for FDM multiplex equipment would mean accepting, at the rack-space level, heat dissipation of dangerous proportions. The specification has consequently imposed, through its prescriptions, the adoption of circuit solutions for the electronic restitution device which, while guaranteeing the performance characteristics themselves, especially as regards the speed of the commutations of the current between the two polarities even with highly inductive loads, ensures entirely acceptable limit power dissipation by the equipment. This limit is set at 65W (less than half the dissipated power of an equal number of FDM telegraph channels), and the resultant benefits in terms of the size of the exchange air-conditioning installations, consumption of electric power, and the life of the equipment scarcely need be pointed out.

An interface of one type (high-power or low-power) can take the place of the other type of interface on the rack by the simple change of a card, and in addition, the multiplexer can be equipped in a mixed manner also--that is, with high-power and low-power interfaces--without any special device.

7. The MODEM Assembly

For the purpose of permitting insertion of the multiplexed (aggregate) signal at the speed of 2.4 kbit/sec on a 300-3,400 Hz voice channel, the specification provides that the apparatus may be equipped with a modulator-demodulator assembly.

In the determination of the specifications for this set, three objectives esserntially were kept in mind:

(1) finding the appropriate interface circuits;

(2) cooperation with TDM apparatuses belonging to foreign systems;

(3) possibility of being able to make use of an outside MODEM, when useful or necessary.

On the first point, in consideration of the particular operational utilization of the MODEM, the number of interface circuits provided for by Recommendation V.26 of the ITTCC (relative to 2,400 bit/sec MODEM's) has been limited to what is strictly necessary. Specifically, they are the following:

102 - signal ground or common return;

103 - transmission of data;

104 - reception of data;

109 - detection of signal presence in line;

110 - detection of signal quality;

113 - timing for the signal elements in transmission (from MODEM to TDM);

115 - timing for the signal elements in reception.

Special mention should be made of of the 110 circuit (signal-quality detector), which, although not provided for by the abovementioned Recommendation V.26, has been implemented so as to be able to have an alarm indication whenever there is a reasonable probability that the quality of transmission has dropped below a specific level.

As regards cooperation with TDM apparatuses belonging to foreign networks, all the fundamental characteristics of the MODEM in the specification correspond to ITTCC Recommendations V.24, V.26 and V.28; in particular, it has been provided that the MODEM be equipped with differential phase modulation of type A and type B, selectable by the exchange operator.

Finally, for cases in which it is desired to make use of a MODEM external to the equipment or to have access to a multiplexer of higher order, all the interface circuits have been led to an appropriate terminal strip positioned at the top of the rack in an easily accessible place. The 105, 108/1 and 111 circuits are also located on this terminal strip.

8. The Alarms Assembly

The alarms assembly is for signalling anomalies in the equipment by means of:

(a) activation of a function alarm;

(b) activation of a recapitulation alarm;

(c) the presence of a mass contact on the terminal strip for remote transmission of the alarms.

The recapitulation alarm has the task of summarizing the function alarms; it does the logical sum of the various alarmed functions, whereby the appearance of any alarm causes the lighting of a red lamp at the top of the rack and the closing of a mass contact on the terminal strip.

The recapitulation alarm can be cancelled by means of a centralized pushbutton control; the cancellation causes the red lamp to be turned off and the mass contact to be deactivated. The cancelled alarm is memorized, though, through the lighting of a yellow lamp positioned next to the red one. The cancellation and the related memorization make the circuits of the recapitulation alarm available to receive further alarms. Another characteristic that is not present in FDM multiplexing is that of self-cancellation, which has the effect that the disappearance of an alarm previously cancelled and memorized does not entail further signallings. In FDM multiplex, though, the disappearance of the alarm causes the relighting of the recapitulation-alarm lamp (and also an acoustic signalling), which makes the exchange operator go back to the equipment to actuate the cancellation control.

Before going on to discussion of the function alarms, it is useful to point out that the recapitulation-alarm and memorization lamps can be powered either by external DC voltage or by voltage furnished by the rack feeder. The latter situation has been provided for in order to deal with the possibility of the equipment's being installed in places where external DC voltage is not available (for example, post offices).

9. The Function Alarms

Several of the most important functions carried out by the equipment are provided with an alarm circuit (function alarm).

The functional anomalies that are announced by means of a luminous optical device (usually an LED) are indicated below.

(1) Alarm for loss of lattice synchronism (FAT: Out of Lattice Alinement).

This alarm is activated when the multiplexer receives three consecutive erroneous synchronism words.

(2) Alarm for in-line signal that is outside the limits set (RFS: Network Out of Service).

This is activated when the 109 circuit of the data MODEM is in a state of rest.

(3) Alarm for deterioration of signal quality in line (AQS: Signal-Quality Alarm).

It is activated when the 110 circuit of the data MODEM is in a state of rest rateof error in line greater than or equal to 1.10^{-3}).

(4) Alarm in remote terminal (ATL: Remote-Terminal Alarm).

The alarm is activated when an inverted synchronism word is received.

(5) Alarm for incorrect functioning of the lattice and timing assembly (ALC: Centralized Logic Alarm).

The alarm monitors on a continuous basis the principal operations carried out in the lattice-elaboration and timing assembly.

(6) Programming-error alarm (APE: Erroneous Programming Alarm).

It is activated when, in the multiplexer's programming operations, one position in the sublattice is assigned to more than one channel.

(7) Alarm for incorrect feeder functioning (AGA: Feeder Breakdown Alarm).

Absence of one or more equipment power-supply voltages as well as dangerous increases and/or decreases in the voltages used, over 20 percent, activate this alarm circuit.

10. Remote Signalling of the Function Alarms

For the purposes of remote signalling by means of closing of mass contacts, the function alarms are grouped as follows:

--OR of the FAT, RFS and AQS alarms for remote signalling of functional anomalies in the connections insofar as such alarms concern, in a general way, breakdowns outside the equipment;

--ATL alarm;

--OR of the ALC and APE alarms for remote signalling of functional anomalies of the elaboration part of the multiplexer as well as erroneous programming of it;

--AGA alarm.

11. Measures in Case of Alarm

At commencement of an RFS or FAT alarm, the equipment takes--at the level of the individual channel with different timing, and by choice--one of the measures mentioned earlier; specifically:

(a) restitution of continuous start polarity;

(b) restitution of continuous stop polarity;

(c) loop closure toward the remote terminal for a limited time (about 5 seconds).

For the ALC and AQS alarms, the equipment can take the same measures or can limit itself to signalling the anomaly.

12. The Services

In addition to the unit--referred to under point 4.--that makes it possible to take measurements and make checks both after the sectioning of the telegraph lines has been done or in parallel with the lines themselves, a meter that measures both the currents and the telegraphic voltages is mounted on the rack. This instrument also makes it possible to check the voltages put out by the rack feeder.

The rack can also be equipped with two optional metering instruments. The first is a simple meter that measures the level of the signals on the telephone line, and the second is a test-signal generator and detector. The latter, connected by leads to the input and output of a channel interface, is capable of furnishing test signals at all speeds and character formats used by the multiplexer and of showing correct reception by signalling, by the lighting of an LED, any erroneous bits; such bits can also be counted by applying a counter to an outlet already prepared for it and located on the face of the generator itself.

13. Programming

It was stated earlier that in accordance with alternative B of ITTCC Recommendation R.101, the specification provides for the equipment's being programmed to multiplex tributary channels at different speeds and character structure in all possible combinations as well as to handle the different types of telex signalling and to adopt different behaviors in case of breakdown. The specification does not say anything about how such performance characteristics are to be realized, but limits itself to asking for several requirements that can be summarized as follows:

(a) it must be possible for the exchange personnel to reprogram the equipment directly during functioning by simple operations, without substitution of parts, and working with elements of high reliability;

(b) the reprogramming must take place without interruption of service in the channels not involved;

(c) no machine information must be lost for lack of primary power supply.

As one notes, these requirements are of operational type and aimed at maximum economy and minimum operating difficulty. They allow the manufacturing firms broad freedom of design and do not impede the utilization of future technological development.

14. Reliability

In the previous specifications relative to telegraphic multiplexers, the concept of reliability was never introduced; specification 662 is therefore innovative in this respect also, having set, as the reliability target, 2 breakdowns per 100 channels per year. Because of the lack of previous experience, reference was made, in the fixing of this limit, to the objectives proposed in the standards for PCM telephonic multiplexing, with a higher limit fixed because of the greater heat dissipation that occurs in telegraph equipment as well as the fact that a new multiplexer concept is involved.

15. Conclusions

To refer back to what was said in the introduction, the most immediate advantage that can be drawn from use of TDM multiplexing is the greater exploitation of the voice support channel, with the resulting greater availability of telex trunk circuits. Quality of service will increase also, because of the absence of distortions, presumably greater reliability and the reduced maintenance requirement.

In addition, use of the equipment for tying distant users into the commutation center (by means of baseband MODEM's) is viewed with great interest by the PT administration, and insertion of the multiplexer into the New Data Network (NRD) is being planned with equal interest.

In January 1979, at the end of a long series of laboratory tests, the Higher Institute of Posts and Telecommunications approved the TDM multiplexer made by the FATME company and corresponding to specification 662. At present (July 1979), the equipment made by the GTE and by TELETTRA is in an advanced stage of approval testing. Field tests aimed at evaluating their behavior as regards telex signalling have also been carried out with the FATME and GTE multiplexers. An effective connection using two FATME apparatuses is operative in a bundle of 46 trunk lines between the telex exchanges of Roma-Eur and Napoli.

It is expected that a limited number of approved apparatuses will be placed in service in the Italian telex network by the end of the year.

This will make it possible to acquire precise experience on the behavior of the equipment under operating conditions and will permit a gradual impact with the new philosophy and technology used by the apparatuses.

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NORWAY

SATELLITE COMMUNICATIONS TO ELIMINATE SHORE TELEGRAPH NET

Oslo AFTENPOSTEN in Norwegian 22 Oct 80 p 4

[Article by Rolf L. Larsen: "Revolutionary Emergency Communications at Sea; Satellite In, Morse Code Sender Out"]

[Text] A new radio system based on satellite communications is under development and will revolutionize emergency and safety communications at sea. It is the UN's maritime organization--IMCO--which is now working on making Morse telegraphy completely superfluous. The system will probably imply that today's radio telegraphers must be retrained to, for one thing, also sail as mates aboard a ship in overseas voyages. The system will be completely developed in 1990. It will also mean the establishment of a net of rescue stations on a global basis and the cutback of personnel at existing shore radio stations.

The rescue stations will be responsible for rescue operations in various waters. The main rescue station at Sola will probably be included in the global rescue network which will be connected to the new radio system.

Three geostationary satellites in orbit at an altitude of 36,000 km above the globe will be the sender in the new communications system. All ships on overseas voyages will thereby have satellite communications systems installed on board. In addition to this equipment, VHF radio telephony, medium-frequency and shortwave radio communications equipment will be required.

"By means of this new radio system it is possible to 'break through' to any ship whatever participating in the system. You see, each ship gets assigned a number. It will also not be necessary to have required steady monitoring duty on emergency channels at sea. This, you see, will be looked after automatically," Consultant Bernt Hauge Duborgh at the Norwegian Shipowners Federation tells AFTENPOSTEN. Duborgh is a member of the Norwegian delegation which has just discussed further development of the radio system in London. He is on IMCO's radio committee.

Duborgh relates that the radio committee has worked on the matter for 3 years. About 30 nations are represented in the radio committee, which has now discussed the matter for 2 weeks.

"We have reached agreement on the most important technical questions concerning establishment of a system like this. The radio committee concluded, for one thing, that telegraphy is not to be included in the new marine communications system.

It is rapid technological advances, in satellite communications, for example, which now have made telegraphy superfluous."

Does this mean that the radio telegraphists in the world's merchant fleet must come ashore when the system is put into service in 1990?

"No, in no way. But it does mean the retraining of both those aboard and the telegraphists who in years to come will be trained at maritime schools. The aim in the future is to have one officer on board who is responsible for all the electronic equipment. By the 1990's it is possible that this job will be a combination of a mate's position and that of an on-board communications man. The majority of the electronic equipment which is being developed now will be based on modules. Technology has become so advanced that instead of training people to repair the equipment the desire is to construct a modular system which can quickly replace defective parts."

What will happen if a ship is in distress? How will the future radio communications system be able to be used then?

"A condition for putting the system into service is the establishment of rescue stations on a global basis which will be connected to the system. This was decided at the 'Search and Rescue at Sea' international convention in 1979. In a distress situation it is possible by pressing a distress button on board to transmit automatically a distress signal with the necessary information to the nearest earth satellite station."

"Such a distress signal can be sent by satellite in seconds and it will be able to contain, for example, the name and nationality of the ship and the position it is at. The earth station immediately alerts the rescue station which has responsibility for the waters in question. A similar alert can also be sounded over the conventional radio equipment on board so that it is possible simultaneously with an automatic distress signal to give shore stations and ships in nearby waters a message that help is needed," says Duborgh.

According to AFTENPOSTEN's understanding, the U.S. Coast Guard is preparing the development of an alert system for distress bearing transmitters. If a ship must be abandoned so quickly that it is not possible to press the distress buttons, it is possible to alert the rescue station by activating a distress bearing transmitter which immediately sends a "distress report" by satellite.

Norway has contributed to a great extent to the development of the new radio system through a research project on marine communications. Here it has been with representatives from authorities and employer and employee organizations. The project was started under the direction of the Norwegian Natural Sciences Research Council, and the Norwegian Navigation Research Institute (NSFI) is the leader of the project.

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